

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) An image processing method, comprising:
inputting data indicating a grayscale of a an individual pixel;
converting said input data into grayscale data which specifies a grayscale of an image output apparatus according to predetermined characteristics; and

when said input data of the individual pixel corresponds to a specific grayscale value which causes a defect in an output of said image output apparatus, converting at least part of said input data of the individual pixel into grayscale data which specifies a grayscale value other than the specific grayscale value, and supplying the converted grayscale data of the individual pixel to said image output apparatus.

2. (Previously Presented) An image processing method according to claim 1, said converting further comprising a color reduction processing that reduces the number of levels which is indicatable by said input data into the number of levels which is indicatable by said grayscale data.

3. (Currently Amended) An image processing method according to claim 2, comprising:
inputting data indicating a grayscale of a pixel;
converting said input data into grayscale data which specifies a grayscale of an image output apparatus according to predetermined characteristics; and
when said input data corresponds to a specific grayscale value which causes a defect in an output of said image output apparatus, converting at least part of said input data into grayscale data which specifies a grayscale value other than the specific grayscale value, and supplying the converted grayscale data to said image output apparatus;

said converting further comprising a color reduction processing that reduces the number of levels which is indicatable by said input data into the number of levels which is indicatable by said grayscale data;

said color reduction processing being pseudo-half-tone processing that distributes said grayscale data so that said grayscale data does not concentrate on the same value.

4. (Previously Presented) An image processing method according to claim 2, comprising:

inputting data indicating a grayscale of a pixel;
converting said input data into grayscale data which specifies a grayscale of an image output apparatus according to predetermined characteristics; and
when said input data corresponds to a specific grayscale value which causes a defect in an output of said image output apparatus, converting at least part of said input data into grayscale data which specifies a grayscale value other than the specific grayscale value, and supplying the converted grayscale data to said image output apparatus;

said converting further comprising a color reduction processing that reduces the number of levels which is indicatable by said input data into the number of levels which is indicatable by said grayscale data;

said color reduction processing converting all the input data corresponding to said specific grayscale value into grayscale data which specifies one of grayscale values adjacent to said specific grayscale value.

5. (Currently Amended) An image processing method, comprising:

inputting data of an individual pixel which indicates a grayscale of a an individual pixel; and

converting said input data of the individual pixel into grayscale data which specifies a grayscale of an image output apparatus by reducing the number of levels of said input data of the individual pixel according to ~~to~~ predetermined characteristics, and by performing pseudo-half-tone processing that displays a half-tone, in which, when said input data of the individual pixel corresponds to a specific grayscale value which causes a defect in an output of said image output apparatus, at least part of said input data of the individual pixel is converted into grayscale data which specifies one of grayscale values adjacent to said specific grayscale value of the individual pixel, and supplying the converted data of the individual pixel to said image output apparatus.

6. (Currently Amended) An image processing method ~~according to claim 5, the step of converting said input data into said grayscale data further comprises~~ comprising:

inputting data which indicates a grayscale of a pixel; and

converting said input data of the input pixel into grayscale data which specifies a grayscale of an image output apparatus by reducing the number of levels of said input data according to predetermined characteristics, and by performing pseudo-half-tone processing that displays a half-tone, in which, when said input data corresponds to a specific grayscale value which causes a defect in an output of said image output apparatus, at least part of said input data is converted into grayscale data which specifies one of grayscale values adjacent to said specific grayscale value, and supplying the converted data of the individual pixel to said image output apparatus;

performing first pseudo-half-tone processing on said input data;

determining whether the data subjected to said first pseudo-halftone processing is said specific grayscale value; and

outputting the data subjected to said first pseudo-halftone processing as the grayscale data when a result of said determination step is no, and of further performing second pseudo-halftone processing on the data subjected to said first pseudo-halftone processing when a result of said determination step is yes so as to convert the data into the grayscale data which specifies one of the grayscale values adjacent to said specific grayscale value.

7. (Currently Amended) An image processing method ~~according to claim 5, the step of converting said input data into said grayscale data further~~ comprising:

inputting data which indicates a grayscale of a pixel; and

converting said input data of the input pixel into grayscale data which specifies a grayscale of an image output apparatus by reducing the number of levels of said input data according to predetermined characteristics, and by performing pseudo-halftone processing that displays a halftone, in which, when said input data corresponds to a specific grayscale value which causes a defect in an output of said image output apparatus, at least part of said input data is converted into grayscale data which specifies one of grayscale values adjacent to said specific grayscale value, and supplying the converted data to said image output apparatus;

performing first pseudo-halftone processing on said input data;

determining whether the data subjected to said first pseudo-halftone processing is said specific grayscale value and whether said input data is contained in part of a range corresponding to said specific grayscale value in said characteristics; and

outputting the data subjected to said first pseudo-halftone processing as the grayscale data while allowing an output of said specific grayscale value when a result of said

determination step is no, and of further performing second pseudo-half-tone processing on the data subjected to said first pseudo-half-tone processing when a result of said determination step is yes so as to convert the data into the grayscale data which specifies one of the grayscale values adjacent to said specific grayscale value.

8. (Currently Amended) An image processing method ~~according to claim 5, the step of converting said input data into said grayscale data further~~ comprising:

inputting data which indicates a grayscale of a pixel; and

converting said input data into grayscale data which specifies a grayscale of an image output apparatus by reducing the number of levels of said input data according to predetermined characteristics, and by performing pseudo-half-tone processing that displays a half-tone, in which, when said input data corresponds to a specific grayscale value which causes a defect in an output of said image output apparatus, at least part of said input data is converted into grayscale data which specifies one of grayscale values adjacent to said specific grayscale value, and supplying the converted data to said image output apparatus;

determining whether said input data is contained in a range which is to be converted into said specific grayscale value after performing first pseudo-half-tone processing; and

performing said first pseudo-half-tone processing on said input data when a result of said determination step is no so as to convert the data into the grayscale data, and of performing second pseudo-half-tone processing on said input data when a result of said determination step is yes so as to convert the data into the grayscale data which specifies one of the grayscale values adjacent to said specific grayscale value.

9. (Currently Amended) An image processing method ~~according to claim 5, the step of converting said input data into said grayscale data further~~ comprising:

inputting data which indicates a grayscale of a pixel; and

converting said input data into grayscale data which specifies a grayscale of an image output apparatus by reducing the number of levels of said input data according to predetermined characteristics, and by performing pseudo-halftone processing that displays a halftone, in which, when said input data corresponds to a specific grayscale value which causes a defect in an output of said image output apparatus, at least part of said input data is converted into grayscale data which specifies one of grayscale values adjacent to said specific grayscale value, and supplying the converted data to said image output apparatus;

determining whether said input data is contained in part of a range which is to be converted into said specific grayscale value after performing first pseudo-halftone processing; and

performing said first pseudo-halftone processing on said input data when a result of said determination step is no so as to output the data as the grayscale data while allowing an output of said specific grayscale value, and of performing second pseudo-halftone processing on said input data when a result of said determination step is yes so as to convert the data into the grayscale data which specifies one of the grayscale values adjacent to said specific grayscale value.

10. (Currently Amended) An image processing method ~~according to claim 5, the step of converting said input data into said grayscale data further comprising:~~

inputting data which indicates a grayscale of a pixel; and

converting said input data into grayscale data which specifies a grayscale of an image output apparatus by reducing the number of levels of said input data according to predetermined characteristics, and by performing pseudo-halftone processing that displays a halftone, in which, when said input data corresponds to a specific grayscale value which causes a defect in an output of said image output apparatus, at least part of said input data is

converted into grayscale data which specifies one of grayscale values adjacent to said specific grayscale value, and supplying the converted data to said image output apparatus;

converting said input data according to modified characteristics in such a manner that one of said characteristics out of a range corresponding to said specific grayscale value remains the same, and an inclination of said range is substantially halved, and the other characteristic out of said range maintains the continuity;

performing pseudo-half-tone processing on the data converted by the modified characteristics; and

outputting the data, among the data subjected to said pseudo-half-tone processing, smaller than said specific grayscale value as the grayscale data, and of shifting each grayscale value of the data greater than or equal to said specific grayscale value.

11. (Previously Presented) An image processing method, comprising:

inputting data indicating a grayscale of a pixel;

selecting a dither value according to coordinates of said pixel from a predetermined dither matrix for pseudo-half-tone processing, and adding the dither value to said input data;

reducing the data obtained by adding the dither value thereto to the number of levels which is indicatable by an image output apparatus;

determining whether the reduced data is a specific grayscale value which causes a defect in an output of said image output apparatus;

outputting the reduced data as is to said image output apparatus when a result of said determination is no; and

adding when a result of said determination is yes, said dither value and a value according to said color reduction to the reduced data so as to convert said input data into data

which specifies one of grayscale values adjacent to said specific grayscale value according to the addition result and outputting the resulting data to the image output apparatus.

12. (Previously Presented) An image processing method according to claim 11, the result of said determination being rendered to be yes only when the reduced data is said specific grayscale value, and when the grayscale of said input data is contained in a range corresponding to said specific grayscale value and is contained in a range narrower than the range corresponding to said specific grayscale value.

13. (Previously Presented) An image processing method, comprising:

inputting data indicating a grayscale of a pixel;

determining whether said input data is contained in a range which is to be converted into a specific grayscale value which causes a defect in an output of an image output apparatus after a dither value is added to said input data, and after the number of levels of said input data is reduced to the number of levels which is indicatable by said image output apparatus;

when a result of said determination is no, adding the dither value to said input data, and the number of levels of said input data is reduced to the number of levels which is indicatable by said image output apparatus, and outputting the resulting data to said image output apparatus; and

when a result of said determination is yes, adding a doubled value of said dither value and a value according to said color reduction to said input data so as to convert said input data into data which specifies one of grayscale values adjacent to said specific grayscale value according to the addition result, and outputting the resulting data to said image output apparatus.

14. (Previously Presented) An image processing method according to claim 13, the result of said determination being rendered to be yes only when said input data is

contained in a range narrower than the range which is to be converted into the specific grayscale value which causes a defect in said image output apparatus.

15. (Previously Presented) An image processing method, comprising:

performing pre-processing on input data indicating a grayscale of a pixel;

performing pseudo-half-tone processing on the data subjected to said pre-processing; and

performing post-processing on the data subjected to said pseudo-half-tone processing, thereby reducing the number of levels of said input data into the number of levels which is indicatable by an image output apparatus;

said image processing method being characterized in that said pre-processing compresses a range from a center value corresponding to one of grayscale values adjacent to a specific grayscale value which causes a defect in an output of said image output apparatus to a center value corresponding to the other adjacent grayscale value into a range from the center value corresponding to one of the grayscale values adjacent to said specific grayscale value to a center value corresponding to said specific grayscale value, and

when the data subjected to said pseudo-half-tone processing is said specific grayscale value, said post-processing shifts the grayscale value and then outputs the shifted value.

16. (Previously Presented) An image processing method, comprising:

performing pre-processing on input data indicating a grayscale of a pixel;

performing pseudo-half-tone processing on the data subjected to said pre-processing; and

performing post-processing on the data subjected to said pseudo-half-tone processing, thereby reducing the number of levels of said input data into the number of levels which is indicatable by an image output apparatus;

said image processing method being characterized in that said pre-processing compresses a range from a center value corresponding to one of grayscale values adjacent to a specific grayscale value which causes a defect in an output of said image output apparatus to a center value corresponding to the other adjacent grayscale value into a range from the center value corresponding to one of the grayscale values adjacent to said specific grayscale value to a center value corresponding to said specific grayscale value, and

when the grayscale value of said input data is contained in a range including the center value corresponding to said specific grayscale value, and when the data subjected to said pseudo-half-tone processing is said specific grayscale value, said post-processing shifts the grayscale value and then outputs the shifted value.

17. (Previously Presented) An image processing method, comprising:

performing pre-processing on input data indicating a grayscale of a pixel;

performing pseudo-half-tone processing on the data subjected to said pre-processing; and

performing post-processing on the data subjected to said pseudo-half-tone processing, thereby reducing the number of levels of said input data into the number of levels which is indicatable by an image output apparatus;

said image processing method being characterized in that said pre-processing compresses a range including a center value corresponding to a specific grayscale value which causes a defect in an output of said image output apparatus into a range including a mean value of a center value corresponding to one of the grayscale values adjacent to said specific grayscale value and a center value corresponding to said specific grayscale value, and

when the grayscale value of said input data is contained in the range including the center value corresponding to said specific grayscale value, and when the data subjected

to said pseudo-half-tone processing is said specific grayscale value, said post-processing shifts the grayscale value and then outputs the shifted value.

18. (Currently Amended) An image processing apparatus, comprising:

a conversion circuit that converts input data indicating a grayscale of a an individual pixel into grayscale data which specifies a grayscale of an image output apparatus according to predetermined characteristics, wherein, when said input data of the individual pixel corresponds to a specific grayscale value which causes a defect in an output of said image output apparatus, said conversion circuit converts at least part of said input data of the individual pixel into grayscale data which specifies a grayscale value other than the specific grayscale value, and supplies the converted grayscale data of the individual pixel to said image output apparatus.

19. (Currently Amended) An image processing apparatus, comprising:

B1
a conversion circuit that converts input data indicating a grayscale of a an individual pixel into grayscale data which specifies a grayscale of an image output apparatus by reducing the number of levels of said input data according to predetermined characteristics, and by performing pseudo-half-tone processing for displaying a half-tone, wherein said conversion circuit converts at least part of the data of the individual pixel corresponding to a specific grayscale value which causes a defect in an output of said image output apparatus into grayscale data which specifies one of grayscale values adjacent to said specific grayscale value, and supplies the converted data of the individual pixel to said image output apparatus.

20. (Currently Amended) An electronic device, comprising:

an image processing apparatus and an image output apparatus,

said image processing apparatus converting input data indicating a grayscale of an individual pixel into grayscale data which specifies a grayscale of said image output

apparatus by reducing the number of levels of said input data according to predetermined characteristics and by performing pseudo-half-tone processing for displaying a half-tone,

said image processing apparatus comprising a conversion circuit that converts at least part of the input data of the individual pixel corresponding to a specific grayscale value which causes a defect in an output of said image output apparatus into the grayscale data which specifies one of grayscale values adjacent to said specific grayscale value, and said image forming apparatus outputting an image according to the grayscale data of the individual pixel converted by said image processing apparatus.

21. (Currently Amended) An image processing program which causes a computer that supplies grayscale data which specifies a grayscale of an image output apparatus to said image output apparatus to function as device that indicates a grayscale of an individual pixel into said grayscale data by reducing the number of levels of the input data according to predetermined characteristics and by performing pseudo-half-tone processing for displaying a half-tone, wherein the device converts at least part of the data of the individual pixel corresponding to a specific grayscale value which causes a defect in an output of said image output apparatus into the grayscale data which specifies one of grayscale values adjacent to said specific grayscale value, and supplies the converted grayscale data of the individual pixel to said image output apparatus.

22. (Currently Amended) A computer-readable recording medium on which an image processing program is recorded, said image processing program causing a computer for supplying grayscale data which specifies a grayscale of an image output apparatus to said image output apparatus to function as device that indicates a grayscale of an individual pixel into said grayscale data by reducing the number of levels of the input data according to predetermined characteristics and by performing pseudo-half-tone processing for displaying a half-tone, wherein the device converts at least part of the data of the individual pixel

Bl
cond.

corresponding to a specific grayscale value which causes a defect in an output of said image output apparatus into the grayscale data which specifies one of grayscale values adjacent to said specific grayscale value, and supplies the converted grayscale data of the individual pixel to said image output apparatus.
